

EXHIBIT 77
REDACTED

MAO DECLARATION
OPPOSITION TO SUMMARY
JUDGMENT



Firebase Growth

Feb 2017

Francesco Nerieri - [REDACTED]



Firebase Mission

Firebase helps developers...

Build a better app, and a more successful business.

Google

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Firebase Mission

Firebase helps developers...

Build a better app, and a more successful business.

Develop

Grow & Earn

Google

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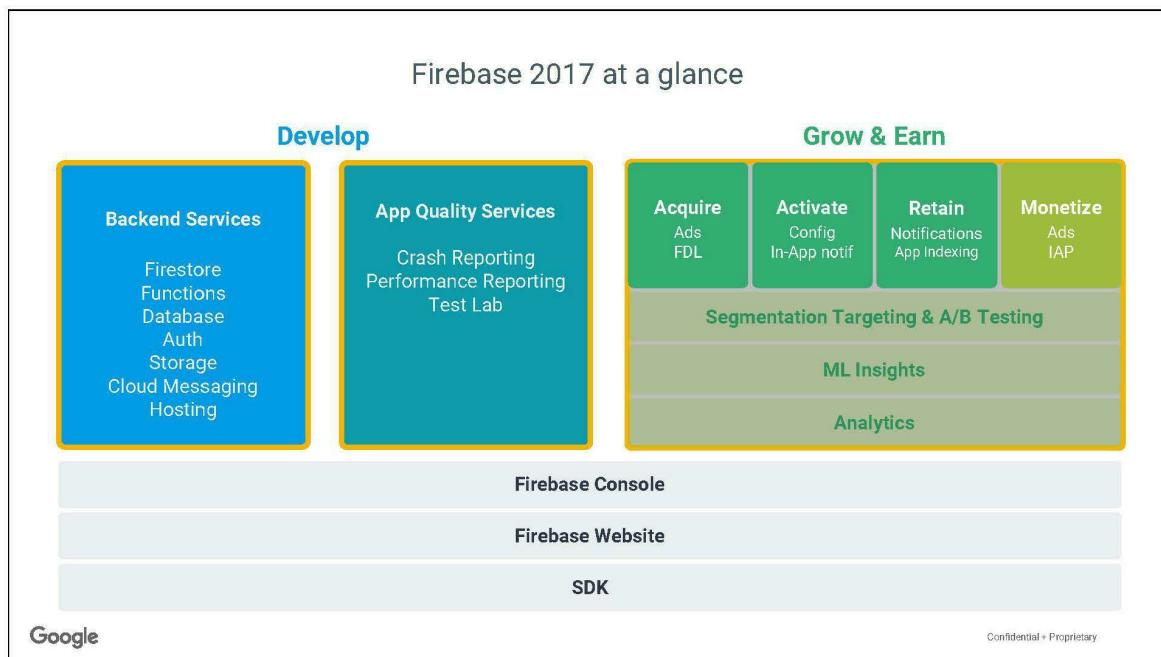
Why?

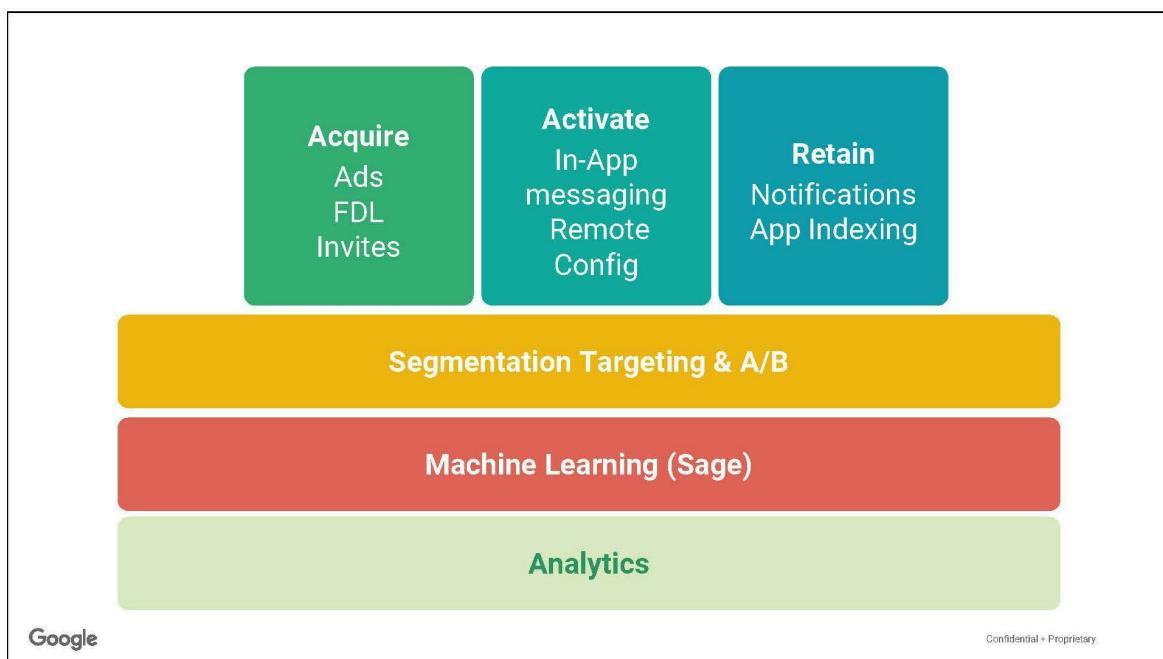
- 1. Building Google's relationship with developers**
- 2. Drive SDK adoption and boost mobile Ads business**
- 3. Increasing Google Cloud adoption & revenue**

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Ads Attribution: The Conversion Event Data it collects lets our Ads customers track the performance of their campaigns.
Making better products: In-app behavioral data is valuable for enhancing Google products through ML.
ant to highlight the top 3 goals that we're really focusing on in 2017, from the perspective of Google's business.

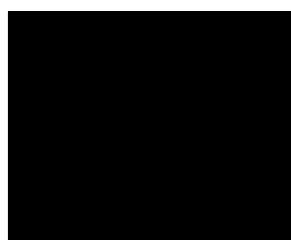
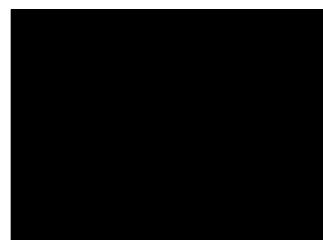
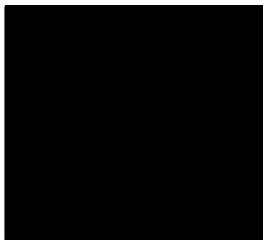




ACQUIRE: Dynamic Links & Invites

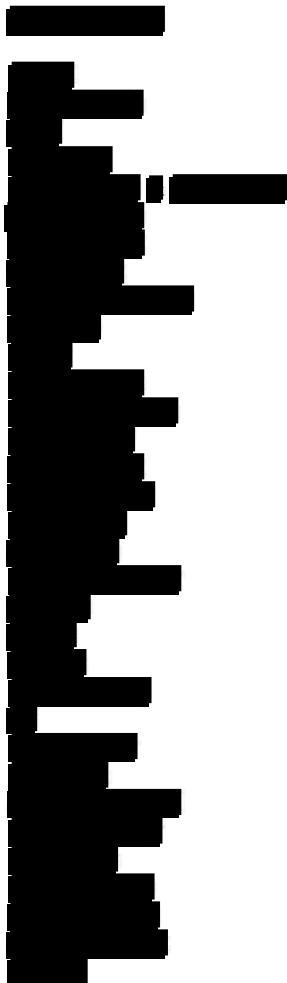
Google

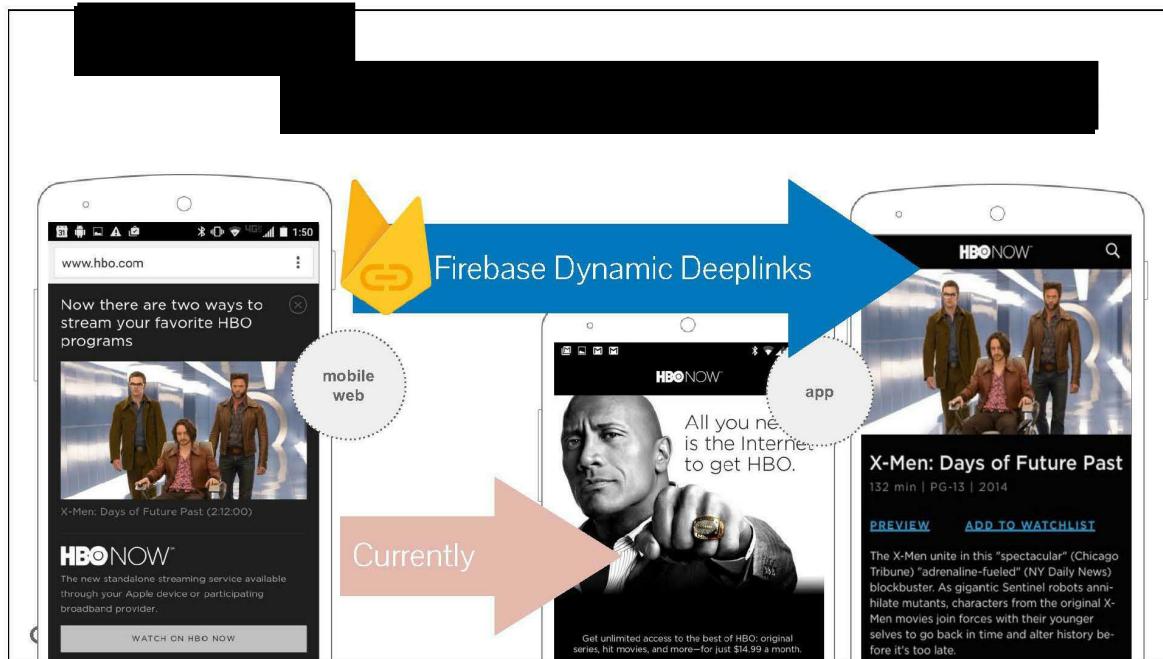
Deeplinks matter to growth performance

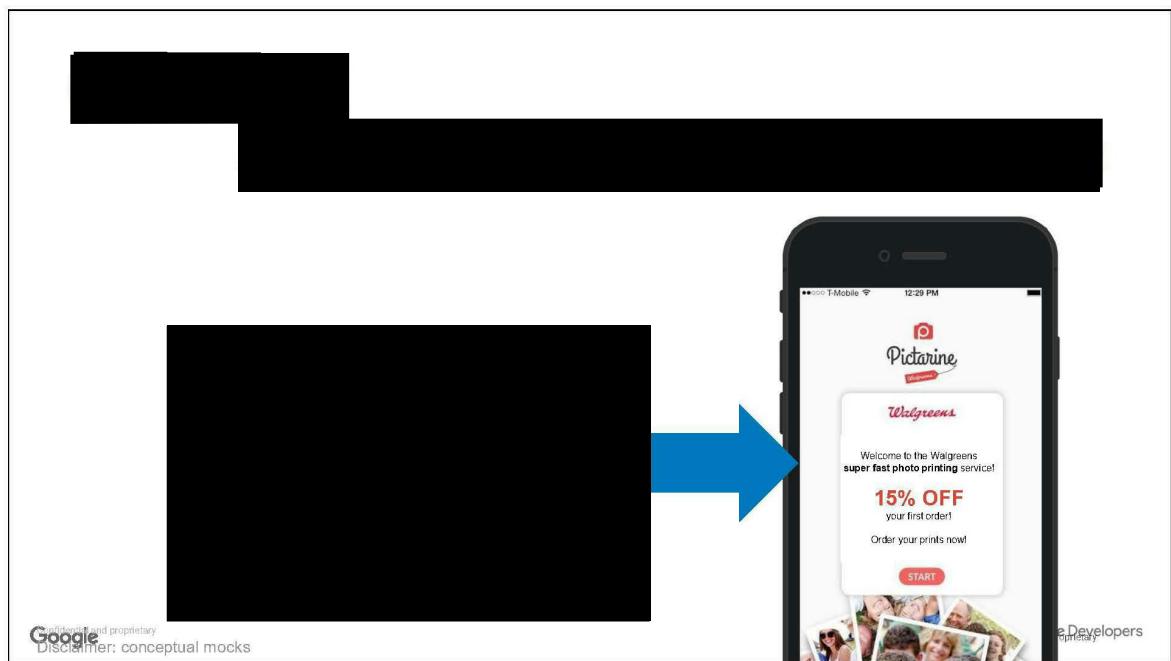


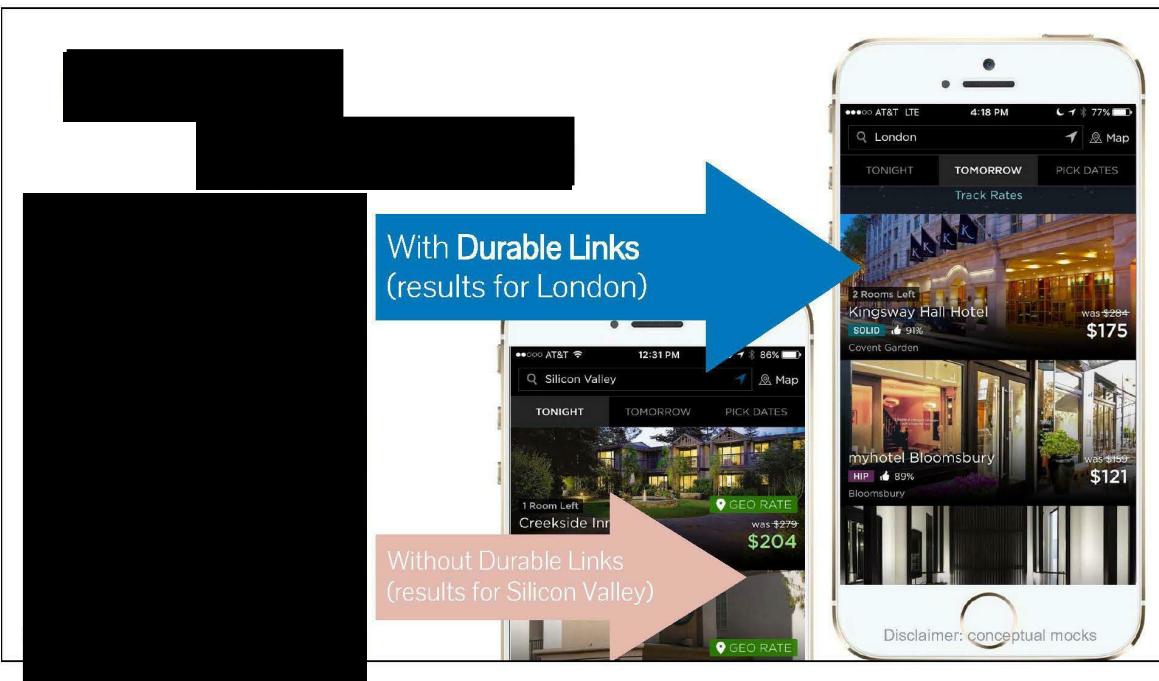
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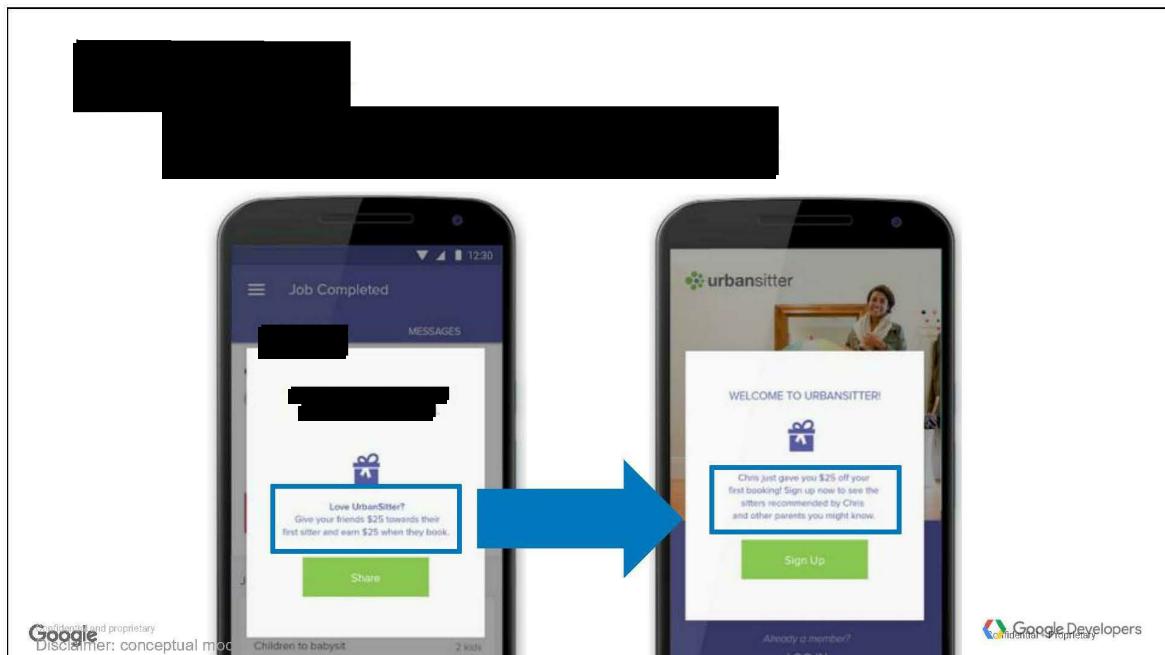
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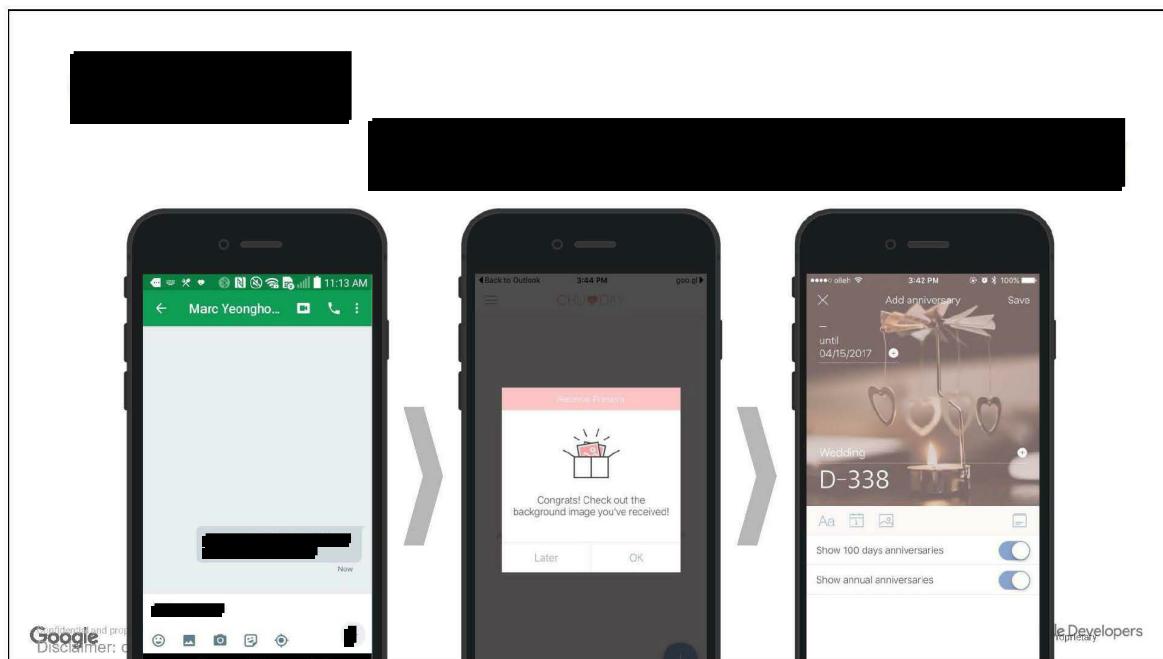


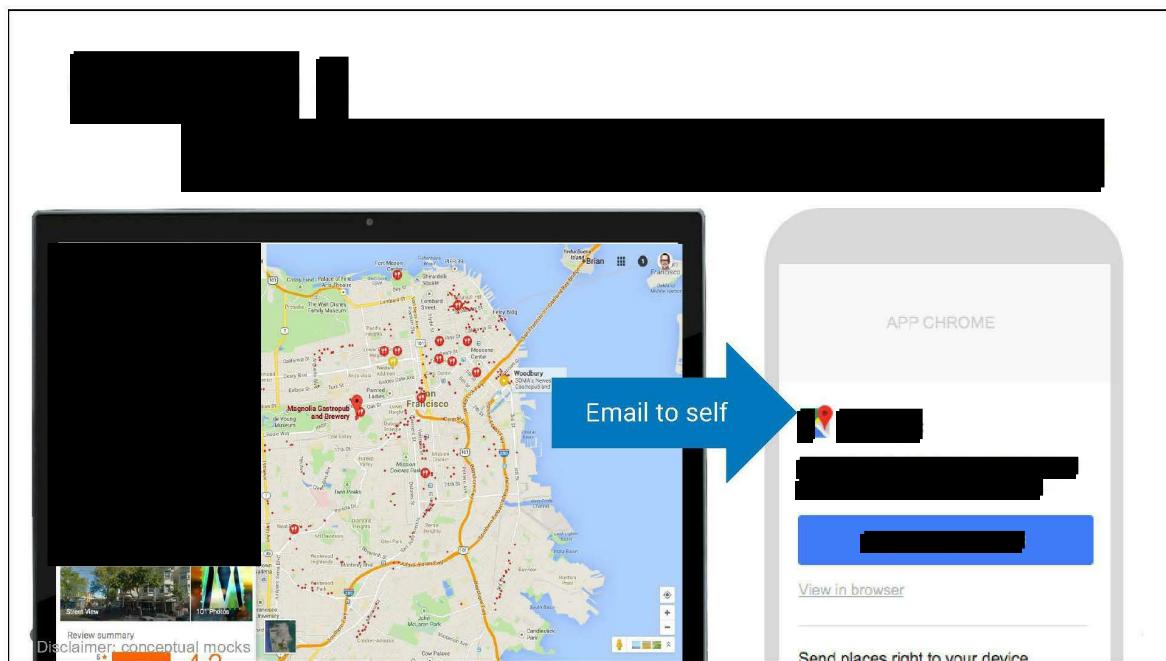




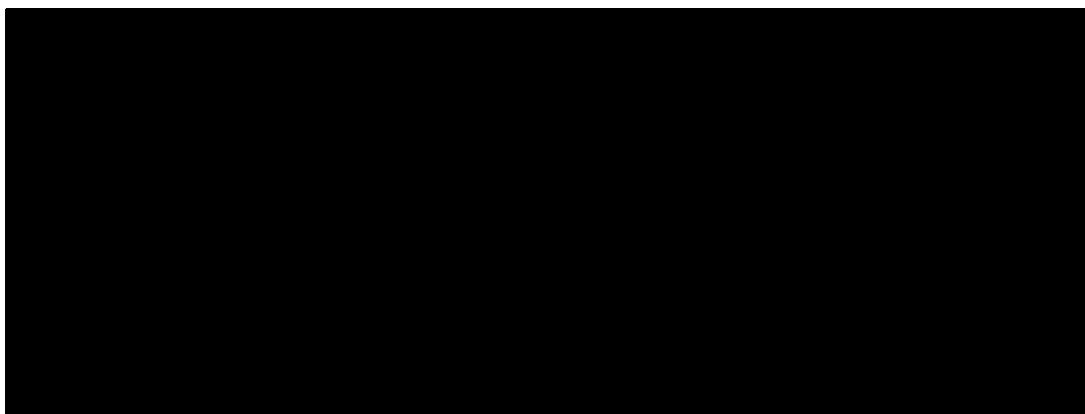








Roadmap: FDL Analytics

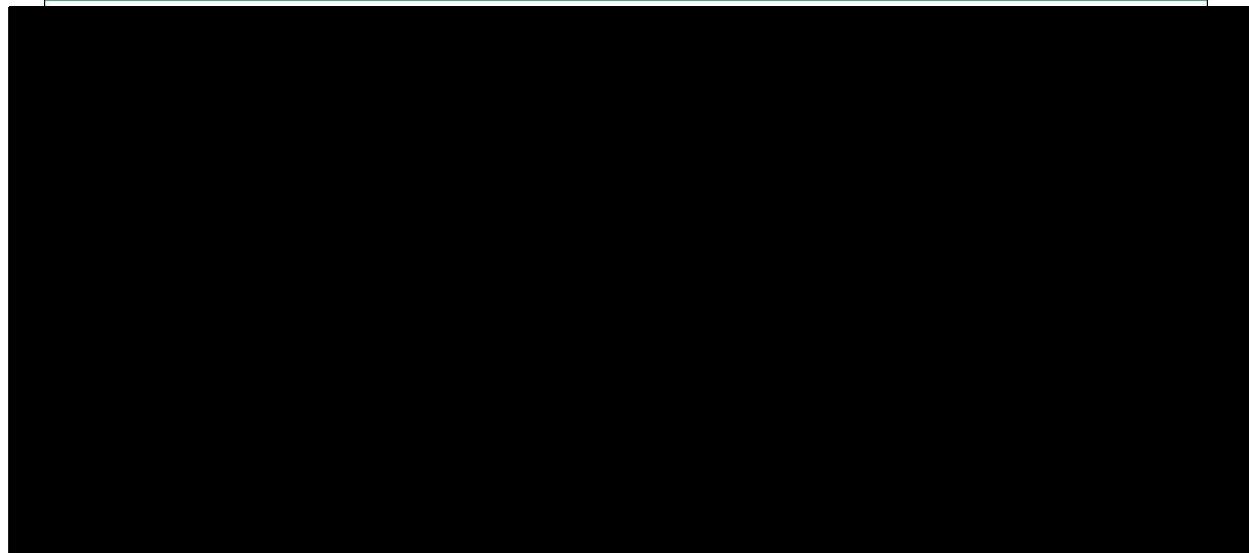


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Roadmap: FDL Domain Settings



Roadmap: FDL Analytics

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

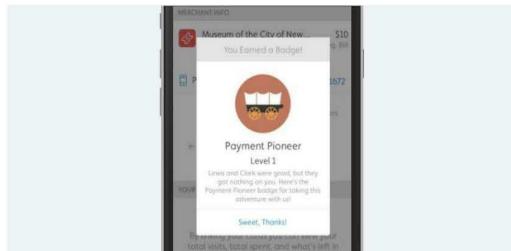
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ACTIVATE: In-App Notifications

NEW In-app notifications

Customized messages to engage users within the app, to drive action



Jon



Subir

Google

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ACTIVATE: Remote Config



Safa



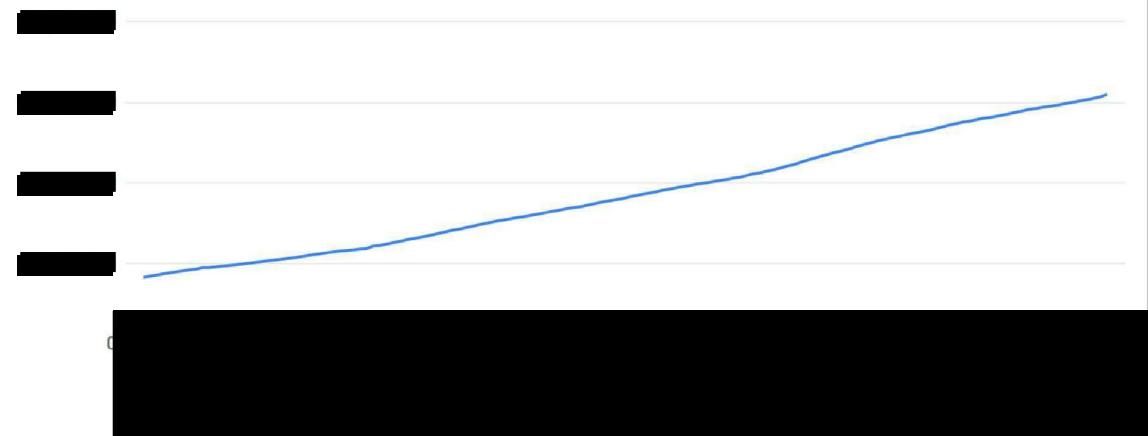
Tal

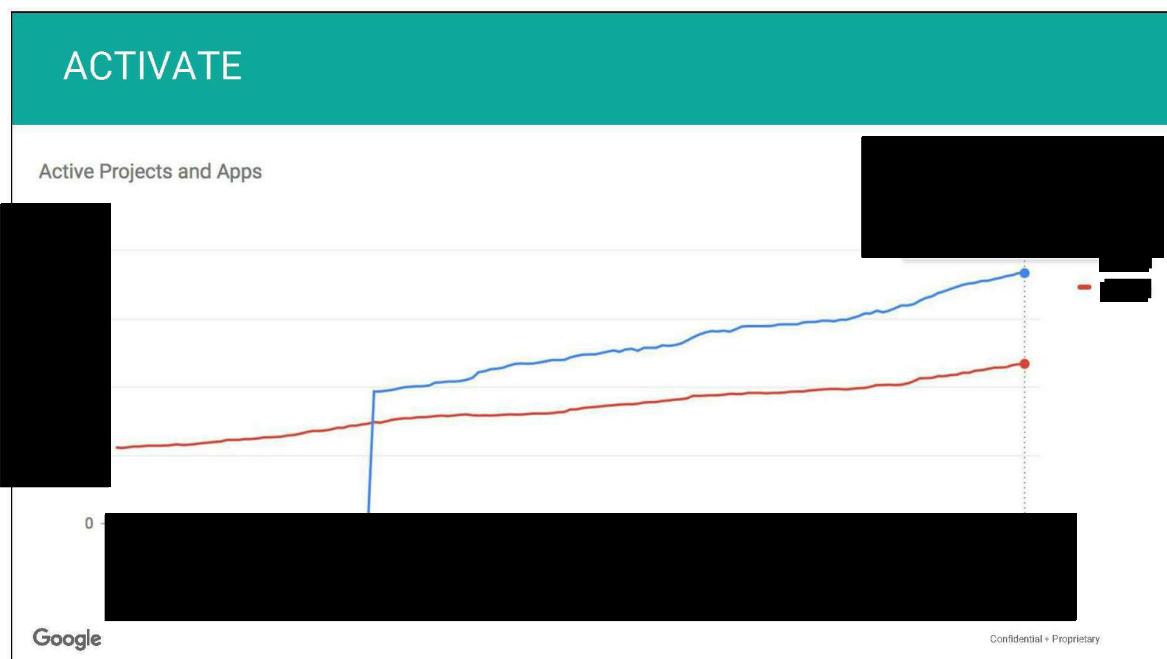
Daily Active Instances

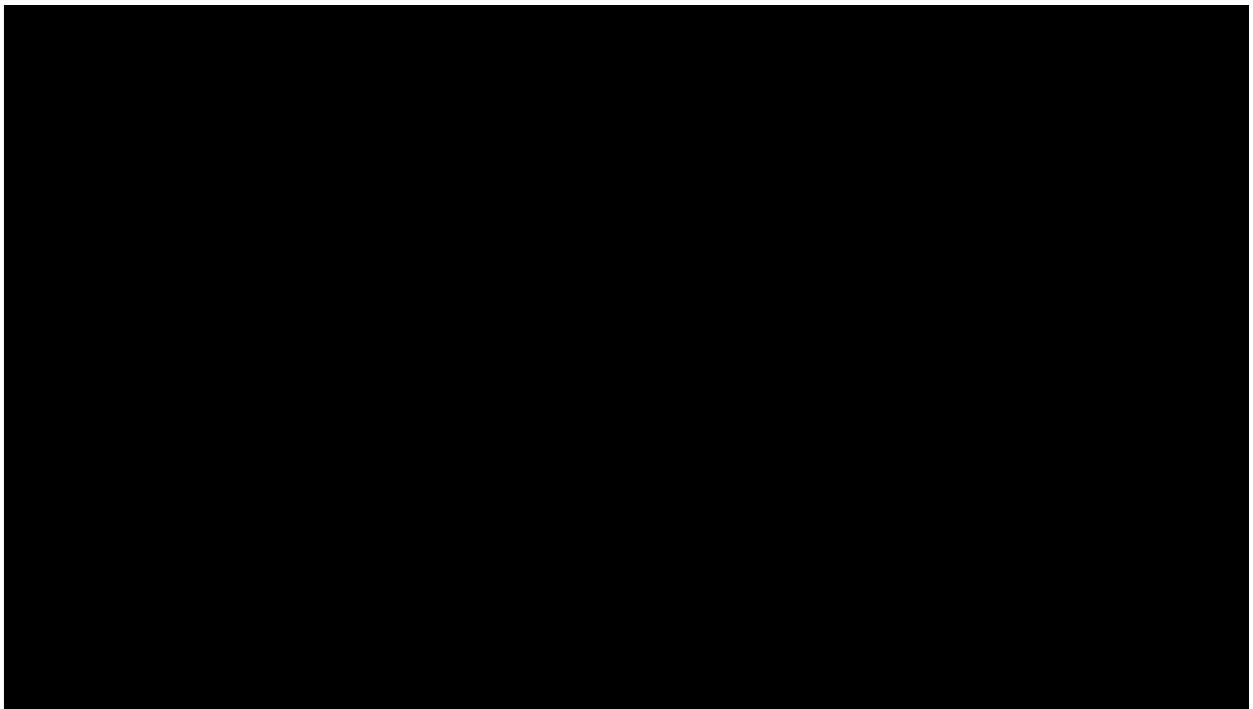


ACTIVATE: Remote Config

Unique App Instances by Date







ACTIVATE: Registry



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ACTIVATE: Registry



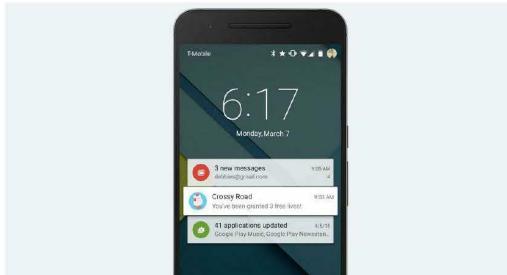
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RETAIN: Firebase Cloud Messaging & Notifications

Notifications

Re-engage users via push notifications



Ian



Jon



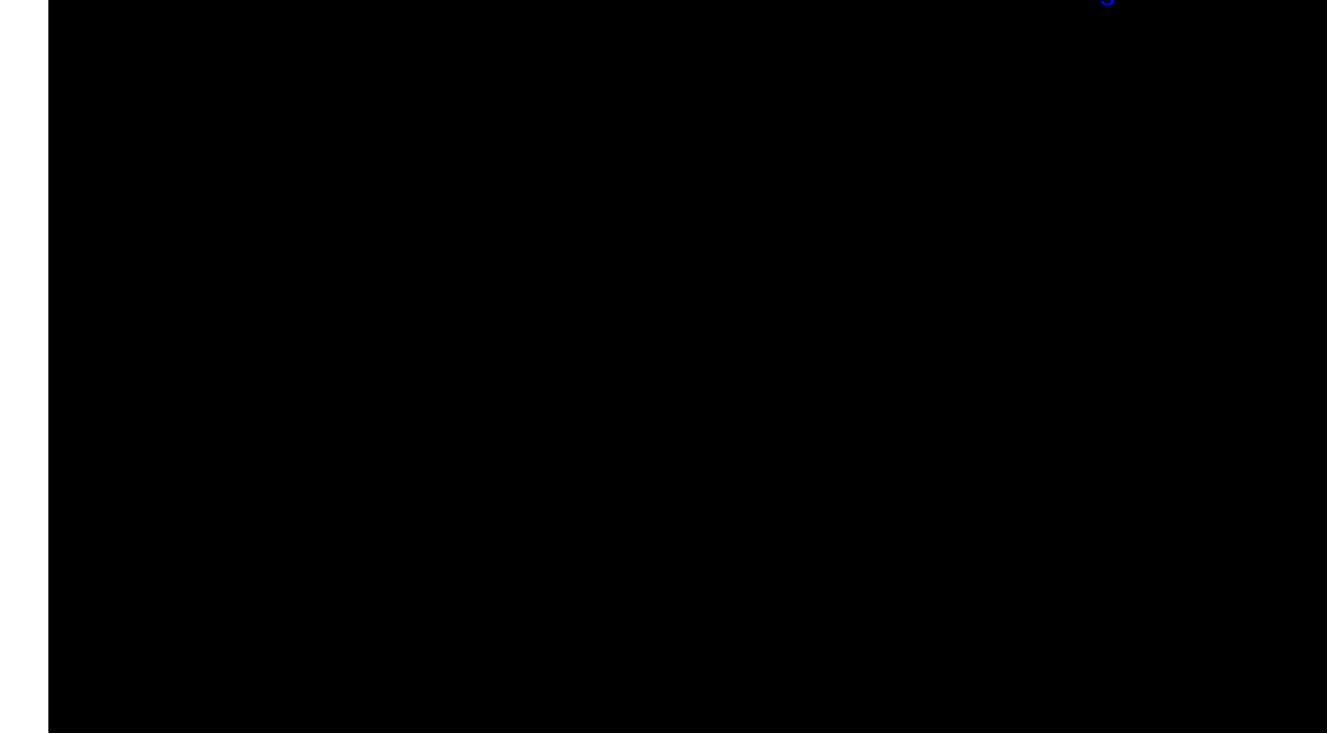
Subir



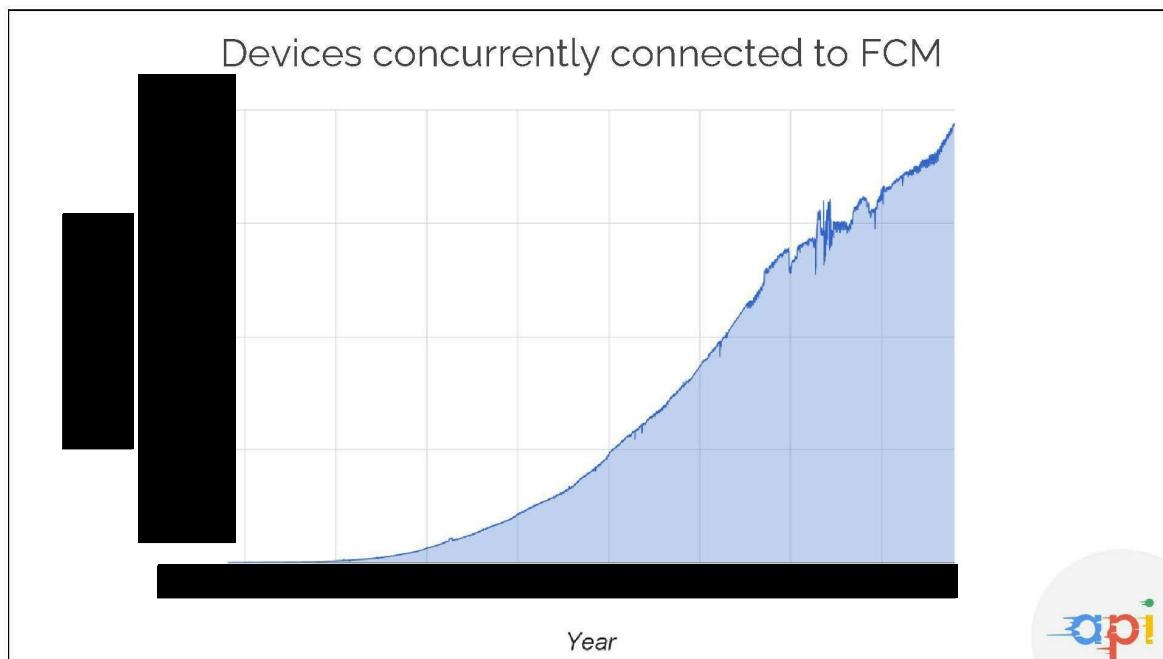
Todd

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Firebase Cloud messaging is used by [REDACTED] helps them reach out to their users in real time. We reach out to [REDACTED] We process [REDACTED] every week



Since we launched the service in 2010 we have seen tremendous growth. We crossed [REDACTED]

So with this growth it is easy to overlook some small problems. [REDACTED] the population, you have some [REDACTED] When we built cloud messaging we did not expect such growth, not for android, nor for cloud messaging. [REDACTED]

Finding the right balance
between [REDACTED]
and [REDACTED]



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[REDACTED]

Turns out you just need a little bit of tinfoil.. Jk.

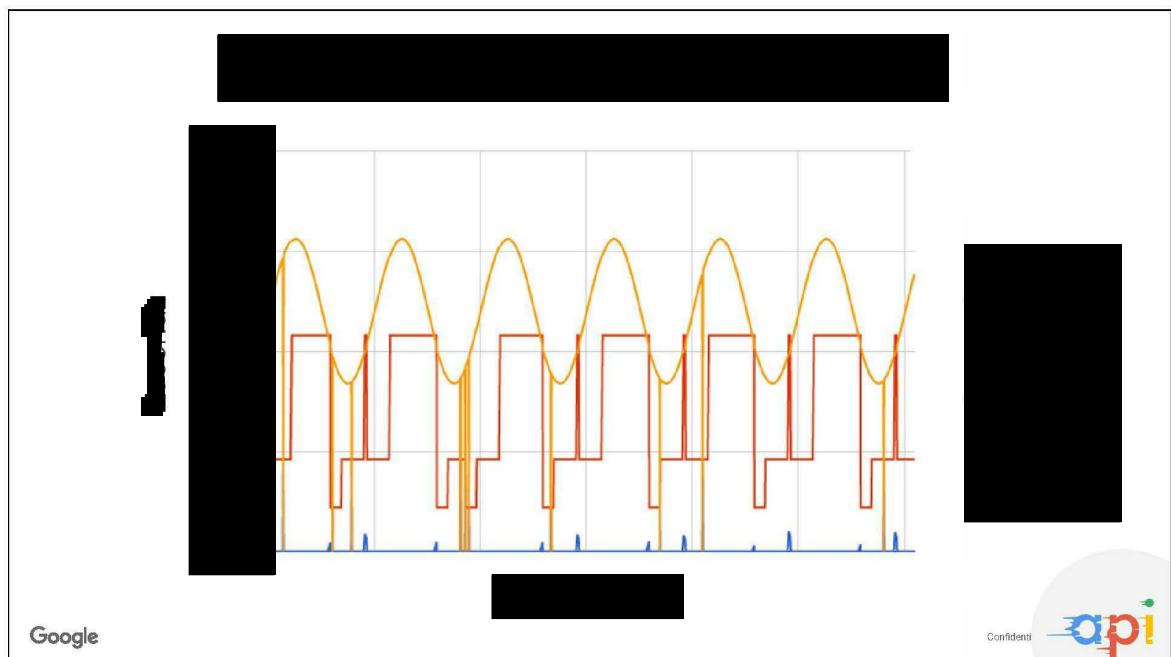
Constant int heartbeat

= ~~415~~ mins



Google

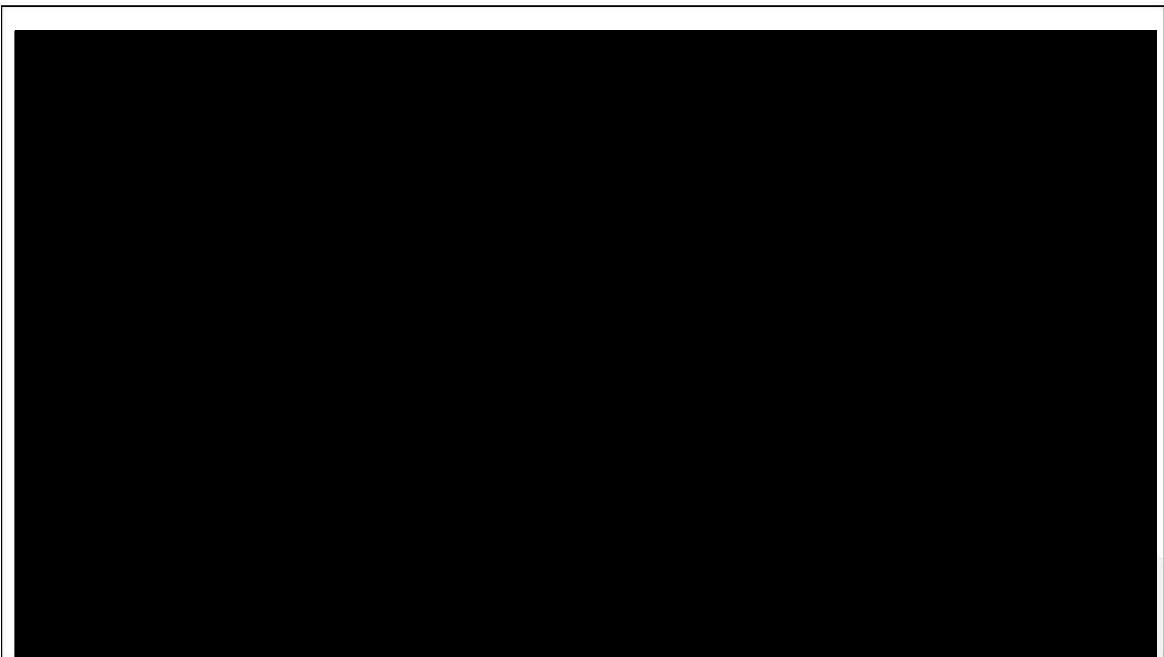


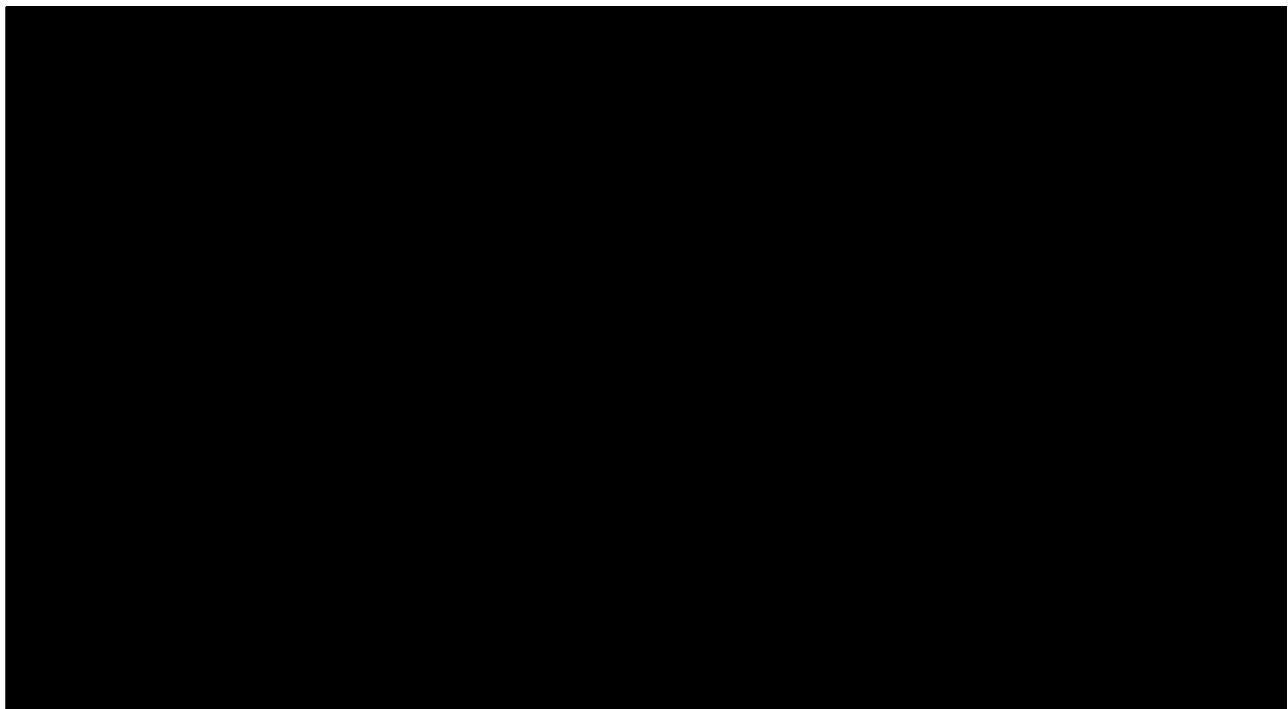


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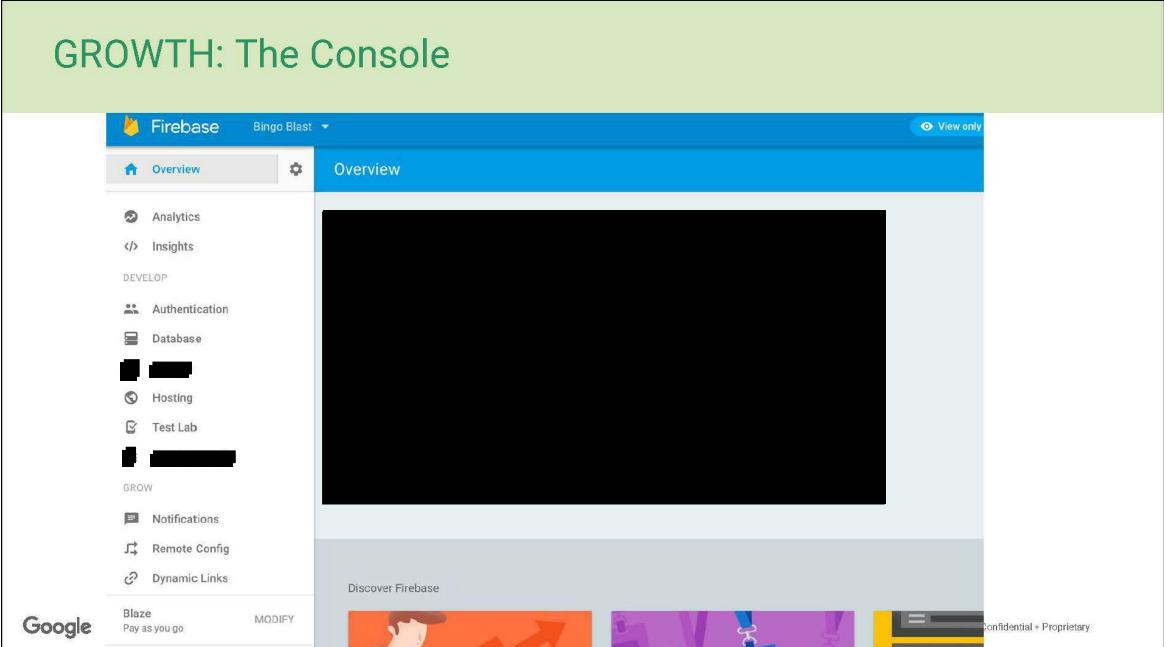
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GROWTH: The Console



The screenshot shows the Firebase console interface. The top navigation bar includes the Firebase logo, the project name 'Bingo Blast', and a 'View only' button. The left sidebar is organized into three main sections: 'DEVELOP', 'GROW', and 'Blaze'. Under 'DEVELOP', the services listed are Analytics, Insights, Authentication, Database, Hosting, Test Lab, Notifications, Remote Config, and Dynamic Links. Under 'GROW', there is a 'Blaze' section with the text 'Pay as you go'. The main content area is titled 'Overview' and features a large black rectangular redaction box. At the bottom, there is a 'Discover Firebase' section with three decorative cards (orange, purple, yellow) and a 'Blaze' button.

GROWTH: The Console

The Growth Console

A console for Growth Hackers

GROW

Notifications

Remote Config

Dynamic Links

EARN

AdMob

Crashes (30 days)

3.32K
Users Impacted

Discover Firebase



Ces



Ian



Keum Eun



Roman

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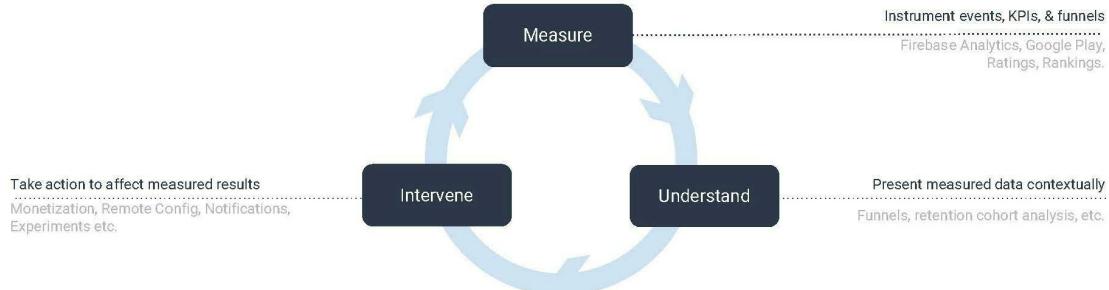
GROWTH: The Console

- Firebase 2.0 Launch
 - All focus on Targeting
 - Conversion Events
 - Manual intervention
- Vision



App Growth Framework

We think about managing app growth as a **continuous 3-phase cycle**



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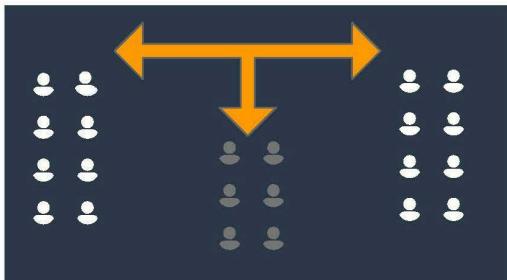
UNDERSTAND: The Growth Dashboard



SEGMENTATION: AB Testing

A/B Testing

Test custom in-app experiences and let the best user experience



Google

In Collaboration with
Google Optimize



Safa



Tal



John Mesh



Jim Wogulis

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SEGMENTATION: AB Testing for Config

Experiment overview

Experiment is running
We're still gathering data to find the best results.

Variant "Blue" is currently leading in converting funnel `welcome_page_open` ||`signup_clicks`

Improvement over Control: **+22.2%**
-1% to +65%

Total users: **14K**
+521 today

Details: Started on Jan 1, 2016 | 3% of users matching 2 criteria | 3 variants

Improvement overview

Variant	welcome_page_open signup_clicks	Engagement	Retention	Crashes
Control 4,621 users	Baseline	Baseline	Baseline	Baseline
Blue 4,618 users	+22.2% -3% to +65%	+2.1% +1.1% to +3.1%	+9.7% +5.1% to +15.2%	-2.1% -5.1% to +0.2%
Red 4,609 users	+18.4% -1.1 to +1.4%	+0.1% -0.2% to +0.2%	+1.5% +5.1% to +15.2%	-0.1% -0.2% to +0.2%

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SEGMENTATION: AB Testing for Config

Variant	Improvement	Conversion rate range	Conversions	Probability to beat baseline	Probability to be best variant
Control 4,621 users	Baseline	47.4% 41.5% to 52.1%	2,429	Baseline	1%
Blue 4,618 users	+22.2% +1% to +65%	57.8% 51.2% to 61.3%	2,739	75.4%	95%
Red 4,609 users	+18.4% -1.1% to +1.4%	52.8% 50.2% to 61.3%	2,608	45.1%	4%

Legend: Blue (Blue), Red (Red), Control (Grey)

Metric	Blue	Red	Control
Users in variant	10K	10K	10.1K
welcome_page_open	8.3K	8.2K	8.3K
signup_click	1.2%	1.19%	1.16%

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SEGMENTATION: AB Testing for Notifications

Variant	Improvement	Conversion rate range	Conversions	Probability to beat baseline	Probability to be best variant
Control 4,621 users	Baseline	47.4% ±8.1%	2,429	Baseline	1%
Message A 4,518 users	+22.2% +1% to +65%	57.8% ±2.2%	2,739	75.4%	95%
Message B 4,609 users	+18.4% -1.1 to +1.4%	52.8% ±3.3%	2,608	45.1%	4%

Legend: Message A (blue), Message B (purple), Control (grey)

Event	Message A (K)	Message B (K)	Control (K)
Sent	10K	10K	10.1K
Opened	8.3K	8.2K	8.3K
promo_applied	174	198	177

Event	Message A (%)	Message B (%)	Control (%)
Sent	83%	82%	83%
Opened	1.2%	1.19%	1.16%
promo_applied	174	198	177

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INTELLIGENCE Applied ML that make app success, simple

NEW Predictions

Create predictions based on any analytics event and allow developers to use them to target notifications and customize in-app experiences through Remote Config



Subir



Jumana

Google

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INTELLIGENCE Applied ML that make app success, simple

Google

Confidential + Proprietary

INTELLIGENCE Applied ML that make app success, simple

Your Key Performance Indicators (last 30 days) [?](#)

Churn

+21% 123,456 users

Spend

-31% 123,456 users



Add your important Analytics events
to get predictions that you care most

Predictions and suggestions (next 7 days) [?](#)

 Will Churn [?](#)

Want to predict [?](#)  Churn

Risk tolerance [?](#) Low Medium High

11% of the users can be targeted for "Will Churn"

TARGET USERS [▼](#)

 Will Spend [?](#)

Want to predict [?](#)  Spend

Risk tolerance [?](#) Low Medium High

19% of the users can be targeted for "Will Spend"

TARGET USERS [▼](#)

Create a prediction to target users likely to open notifications



You can create predictions total up to 10

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INTELLIGENCE Applied ML that make app success, simple

Predictions com.google.android.airbnb

Edited Will write a review prediction

Your Key Performance Indicators (last 30 days) ⓘ

Churn	Spend	book_place	check_availability	open_notifications
+21% 12,459 users	-31% 965 users	-31% 123,456 users	+43% 540,870 clicks	+43% 540,870 clicks

Track up to 8 more events that matter most to your business.

Predictions and suggestions (next 7 days) ⓘ

Will Churn ⓘ

Want to predict: Churn

Risk tolerance: Low Medium High

11% of the users can be targeted for 'Will Churn'

TARGET USERS

Will Spend ⓘ

Want to predict: Spend

Risk tolerance: Low Medium High

19% of the users can be targeted for 'Will Spend'

TARGET USERS

Will book_place ⓘ

Want to predict: book_place

Risk tolerance: Low Medium High

23% of the users can be targeted for 'Will book_place'

TARGET USERS

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Thank You: Q&A

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